STANDARD LABS · RESEARCH PEPTIDES

The Peptide Guide

What to take, how to mix it, and how to store it — without the expensive mistakes.



01 What to Take
02 Research Suppliers
03 Gear
04 Mix & Dose
05 Store It
06 Tools & Resources

INTRODUCTION

A practical guide to research peptides

This guide covers the practical side of working with peptides: which ones are worth knowing, what the evidence actually shows, the gear that makes a difference, how to mix and measure a dose, and how to store a vial so it lasts.

WHY WE MADE THIS

Standard Labs is a Canadian research compound and laboratory supply company. This guide brings compound profiles, equipment, preparation and storage information together in a practical reference.

Use the evidence notes and product documentation together. Our catalogue, research tools and support resources are linked throughout.

CHAPTER 01
What to Take
Compound profiles and evidence.

CHAPTER 02
Research Suppliers
Canadian sourcing and product records.

CHAPTER 03
Gear
Current equipment and CAD prices.

CHAPTER 04
Mix & Dose
Preparation and measurement references.

CHAPTER 05
Store It
Storage and organization.

CHAPTER 06
Tools
Calculators, records and resources.

LINKS
Product and resource links point to standardlabs.io. Prices change, so check the listing before ordering.

SCOPE
This is a practical reference for research peptides, not medical advice. Read the safety page before using anything in this guide.

EVIDENCE
Doses come from trials or labels where they exist; otherwise we say plainly that they are community practice.

HOW TO USE THIS GUIDE

1. Read the evidence tag
Every profile starts with the strongest evidence available — approved, large trial, limited human data, or animal only. Start there, not with the dose.

2. Check the math
Doses are written in mg; syringes are read in units. Chapter 05 shows the conversion and the Standard Labs calculator does it for you.

3. Write it down
Lot, mix date, concentration, dose and site. A log is the cheapest safety tool you own.

READ THIS FIRST

Know the risks before anything else

This guide shares practical information to help you make safer choices. It is not a substitute for a doctor, pharmacist or other licensed professional.

Not medical advice

This guide is for information and education only. Nothing here is medical, legal or professional advice.

Your health, your decision

Talk to a licensed healthcare provider before using any peptide, especially if you have a condition, take medication, are pregnant or breastfeeding, or are under 18.

No guarantees

Research changes, products change, and results vary. The information may be incomplete or out of date.

Research use only

Many compounds here are not approved for human use and are supplied for laboratory research. Laws differ by location; you are responsible for knowing the rules where you live.

Serious reaction? Trouble breathing, chest pain, severe stomach pain, or swelling of the face or throat: stop and call 911 or get emergency care right away.

BEFORE YOU BEGIN

Match the lot. Read the certificate.

Every Standard Labs vial links to a batch certificate of analysis. Check the compound, lot, purity and identity before you mix. A certificate is a record, not a guarantee of how the vial was handled after it left the lab.

Field	Sample
Compound	Retatrutide
Lot	SL-••••
Purity (HPLC)	99.x%
Identity (MS)	Confirmed
Appearance	White cake

Sample certificate. Fields redacted; batch results vary. Open the Certificate tab on the product listing for the current lot.

Three rules that cover most mistakes

Start low. Go slow. When in doubt, throw it out.

IF SOMETHING GOES WRONG

Stop

Do not take another dose until you know what happened. Keep the vial and the label.

Assess

Mild redness or a small bump can settle. Spreading redness, heat, fever, hives or breathing trouble needs medical care.

Get help

Call 911 for a severe reaction. For anything else, contact a licensed healthcare provider or your local poison control centre.

START HERE

This guide is big. You don't need to read it front to back.

Follow the six steps, or jump straight to the page you need. If you are new, start with one peptide and one variable at a time.

YOUR PATH THROUGH THIS GUIDE

1. Read the safety page. Know the risks before anything else.
2. Pick one peptide. Start with one so you know what is doing what.
3. Get your gear. Syringes, needles, a pen if you use one, pads.
4. Mix and measure. Reconstitution, the math and your first dose.
5. Store it right. Cold and dark for powder; fridge for mixed.
6. Write it down. Lot, mix date, dose, site and anything unusual.

CONTENTS

01 What to Take	**5**
02 Research Suppliers	**21**
03 Gear	**25**
04 Mix & Dose	**35**
05 Store It	**46**
06 Tools & Resources	**48**
Glossary	**49**
References	**50**

> **New to this?** One peptide, one change, one log. Adding three things at once tells you nothing about which one helped — or which one caused the side effect.

DAY ONE CHECKLIST

- [ ] Safety page read
- [ ] One peptide chosen
- [ ] Vial and lot recorded
- [ ] Mixing syringe and dosing syringe ready
- [ ] Alcohol pads and sharps container
- [ ] Calculator checked

You do not need a full cupboard to start. You need one clean surface, the right syringe, and a way to write down what you did.

01 · WHAT TO TAKE

Peptides at a Glance

Grouped by goal, with the strongest evidence behind each one and the dose range you will see in trials, on a label, or in common practice. Each compound has its own pages with the details.

HOW TO READ THE EVIDENCE TAGS

FDA approved · Approved outside the US · Large human trials · Limited human data · Mostly animal or lab studies

Strongest at the left, weakest at the right. Animal and lab studies are a starting point, not proof that something works in people.

WEIGHT LOSS

Retatrutide



Hits three hormone receptors. 19–28% of body weight lost in 80 weeks.

0.5–12 mg weekly

Large human trials

Tirzepatide



Two receptors, about 21% lost at the top dose in the main trial.

2.5–15 mg weekly

FDA approved

Cagrilintide



Amylin copy, a different fullness signal. Adds to GLP-1s.

0.25–2.4 mg weekly

Large human trials

RECOVERY, SKIN AND GUT

KLOW / GLOW



GHK-Cu, BPC-157 and TB-500 in one vial; KLOW adds KPV. Used for injuries, skin, hair and gut inflammation.

2–5 mg daily, 5 on / 2 off

Mostly animal or lab studies

New to this? Start with one.

A blend makes it hard to know which ingredient is doing what — or which one caused a reaction. Start with a single peptide, add one variable at a time, and keep a log.

Doses shown are trial, label or community practice. They are not a prescription.

THE SHORT VERSION

The strongest evidence in this guide sits with the GLP-1 and GIP compounds. The recovery blends have the weakest human evidence — not because they do nothing, but because nobody has run the trials yet. Read the tag before you read the dose.

Evidence tags reflect the highest-quality published evidence located for each compound at the time of writing. They are not a ranking of safety or effectiveness.

01 · WHAT TO TAKE

Peptides at a Glance

Growth hormone, metabolic, brain and immune peptides. The same evidence tags apply; the dose column shows the range you will encounter, not a target.

GROWTH HORMONE

Tesamorelin



Cuts visceral fat around the organs and liver fat. Approved for HIV-related fat accumulation.

1–2 mg daily

FDA approved

CJC-1295 + Ipamorelin



Bedtime stack for a natural growth-hormone pulse. No trial has tested the pair.

100–300 mcg each, nightly

Limited human data

METABOLIC, BRAIN AND IMMUNE

MOTS-c



Mitochondrial “exercise mimic.” A metabolic reset.

2.5–10 mg, 2–3× a week

Animal / lab

Semax



Focus and memory. Nasal spray.

200–1,200 mcg a day

Approved abroad

Selank



Calm without drowsiness. Nasal spray.

250–900 mcg a day

Approved abroad

Thymosin Alpha-1



Immune support. Boosts T-cells.

1–1.6 mg twice a week

Approved abroad

FIND YOURS BY GOAL

Lose weight	Tirzepatide or retatrutide; cagrilintide as an add-on
Lose belly and liver fat	Tesamorelin; retatrutide for liver fat
Heal an injury or joints	KLOW / GLOW
Calm a gut or skin flare	KLOW (the KPV part)
Sleep and recovery	CJC-1295 + ipamorelin
Reset after a cut	MOTS-c
Focus and stamina	Semax
Calm and stress	Selank
Immune support	Thymosin Alpha-1

Only tirzepatide and tesamorelin are FDA approved in this group, and only for specific uses. None are authorised in Canada for general human use.

01 · RETATRUTIDE

Retatrutide

A once-weekly triple agonist. It acts on GLP-1, GIP and glucagon — three receptors that change appetite, blood sugar and how the body uses fat.

MINIMUM	MAXIMUM
0.5 mg	**12 mg**

Once a week · Based on trials





Retatrutide · research vial
For research use only

How to dose it

Start low, 0.5–2 mg. Stay at each dose for at least four weeks — it takes about a month to feel the full effect, and side effects tend to show up after a step-up. Most people lose steadily at 2–4 mg. The 8–12 mg range is for a lot to lose. Maintenance is usually 2–4 mg; smaller people often hold at 1–2 mg. Let the vial reach room temperature before you inject.

> **Most people never need the maximum.** Find the lowest dose that works and stay there.

GLP-1

Turns down appetite and slows digestion, so you feel full sooner.

GIP

Helps blood sugar and adds to the appetite effect. Its strongest target.

Glucagon

Tells the liver to burn stored fat. Cut liver fat by over 80% in trials, and may raise calorie burn.

Watch for

- Nausea, vomiting and diarrhea, mostly in the weeks after a step-up. Going slow cuts it.
- Skin tingling or sensitivity (about 12% at 9–12 mg).
- A rise in resting heart rate.
- **Never hungry and barely eating?** The dose is too high. See the protein page.

STATUS **Not FDA approved.** The manufacturer plans to file in early 2027, so any retatrutide sold today is unregulated. Standard Labs supplies it as a research compound, not as a medicine.

Product page, certificate and current pack sizes — **standardlabs.io/product/retatrutide**

Trials started at 2 mg (phase 2 also had a 1 mg group); phase 3 uses 4, 9 and 12 mg. The 0.5–1 mg start is community practice for smaller people. Sources: Jastreboff et al., NEJM 2023; TRIUMPH-1 topline, 2026.

01 · RETATRUTIDE

What the Trials Showed

TRIUMPH-1 followed 2,339 people for 80 weeks. Here is how much weight they lost at each dose, and how often side effects made them stop.

Weight lost at 80 weeks

TRIUMPH-1 · 2,339 people



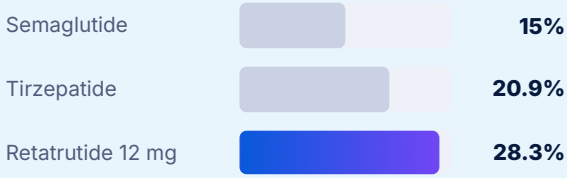
Percent change in body weight from baseline. The 30.3% figure you may see quoted comes from a 104-week extension in people with a baseline BMI of 35 or more, not the 80-week result.

Side effects by dose

Weekly dose	Placebo	4 mg	9 mg	12 mg
Nausea	15%	29%	38%	42%
Quit from side effects	5%	4%	7%	11%

Rounded from the trial. Nausea is the most common reason people stop; it is also the side effect most responsive to a slower step-up.

Compared with drugs you may have heard of



Top-dose results from each drug's main trial. Different trials and different people, so treat this as a rough comparison, not a head-to-head.

Bigger dose, more weight lost — and more nausea. The middle doses are the sweet spot for most people. The best dose is the lowest one that keeps the scale moving without making you miserable.

THREE THINGS TO TAKE AWAY

28.3% at the top dose

Average weight loss at 12 mg over 80 weeks — not a promise for any one person.

Nausea is dose-related

42% at 12 mg versus 29% at 4 mg. Slower steps are the main lever you control.

30.3% is a different number

It comes from a 104-week extension in people with a BMI of 35 or more, not the 80-week trial.

Sources: TRIUMPH-1 topline results (May 2026); Jastreboff et al., NEJM 2023; SURMOUNT-1 (NEJM 2022); STEP-1 (NEJM 2021).

01 · TIRZEPATIDE

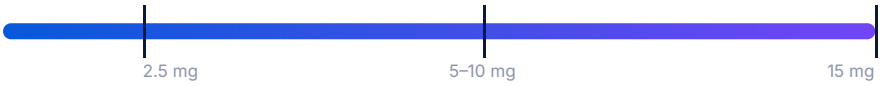
Tirzepatide

The active ingredient in the approved GLP-1/GIP medicines. Two receptors, years of real-world use, and the most predictable dosing in this guide.

MINIMUM
2.5 mg

MAXIMUM
15 mg

Once a week · Based on the FDA label





Tirzepatide · research vial
For research use only

How to dose it

Start at 2.5 mg once a week for four weeks. That first dose is a warm-up, not a test of how well it works. Then go up by 2.5 mg no sooner than every four weeks, and only if you need more. Most people land between 5 and 10 mg. 15 mg is the top labelled dose. Let it reach room temperature before you inject.

> **The first month is a warm-up.** Don't judge it by the scale yet.

Why people pick it

It is FDA approved, so it is the most-studied option here, with years of real-world use. Many people find the side effects milder than other options, and it works on two hormones instead of one.

Tirzepatide vs retatrutide

Retatrutide adds a third target and lost more weight in trials, but it is still experimental. Tirzepatide is the proven middle ground. Do not take both together.

Watch for

- Nausea, diarrhea and constipation, mostly after a step-up.
- Stomach pain that won't go away or spreads to your back: get checked. Pancreatitis is rare but serious.
- **Label warning:** not for anyone with a personal or family history of medullary thyroid cancer or MEN2.

STATUS — **FDA approved** for type 2 diabetes and weight loss in the US, under specific brand names. Not authorised in Canada for general use. Standard Labs supplies the research compound, which is not the approved medicine.

Product page, certificate and current pack sizes — **standardlabs.io/product/tirzepatide**

Doses from the approved product label. Sources: Jastreboff et al., NEJM 2022 (SURMOUNT-1); prescribing information.

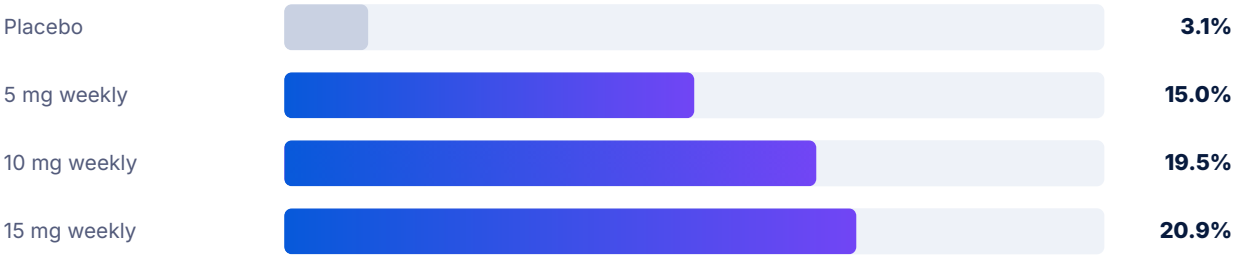
01 · TIRZEPATIDE

What the Trials Showed

SURMOUNT-1 followed people without diabetes for 72 weeks. Every dose beat placebo by a wide margin, and side effects mostly showed up while stepping up.

Weight lost at 72 weeks

SURMOUNT-1 · 2,539 people



Percent change in body weight from baseline. The curve flattens between 10 and 15 mg: the top dose adds a little more loss, not a different result.

Side effects by dose

Weekly dose	Placebo	5 mg	10 mg	15 mg
Nausea	10%	25%	33%	31%
Quit from side effects	2.6%	4.3%	7.1%	6.2%

Nausea peaks during dose increases and often settles. If it does not, a smaller step or a longer hold is usually better than pushing through.

How it stacks up



Top-dose results from each drug's main trial. Rough comparison only: different trials, different people.

Fewer side effects for a lot of people. Still: go slow on the step-ups. The dose that works is the one you can stay on.

Sources: Jastreboff et al., NEJM 2022 (SURMOUNT-1); Wilding et al., NEJM 2021 (STEP-1); TRIUMPH-1, 2026.

01 · CAGRILINTIDE

Cagrilintide

A long-acting amylin analogue. It signals fullness through a different pathway from GLP-1, which is why it is studied alongside it.



MINIMUM
0.25 mg

MAXIMUM
2.4 mg

Once a week · Based on trials





Different receptors, additive effect

Two fullness signals: incretin and amylin

How to dose it

Trials started at 0.25 mg once a week and stepped up every four weeks: 0.25 → 0.5 → 1.0 → 1.7 → 2.4 mg. You do not have to reach the top. Stop stepping up once your appetite is under control. Let the vial reach room temperature before you inject.

Tiny numbers. Double-check your units before you draw.

Weight lost in 68 weeks

Cagri + semaglutide	**20.4%**
Semaglutide alone	**14.9%**
Cagrilintide alone	**11.5%**
Placebo	**3.0%**

REDEFINE 1, 68 weeks. People who stayed on the combination lost 22.7%; 40% lost a quarter or more of their body weight.

Stacking it with a GLP-1?

People pair it with retatrutide or tirzepatide. No trial has tested those combinations. Stomach side effects add up, so start both low and raise one at a time.

Status

CagriSema was filed with the FDA in December 2025, with a decision expected by the end of 2026. In a head-to-head trial it lost to tirzepatide (23% vs 25.5%).

Watch for

- Stomach issues (nausea, vomiting, constipation) in 80% on the combo vs 74% on semaglutide alone, mostly mild.
- Same rule as every appetite peptide: still eat, and hit your protein.

Product page and certificate **standardlabs.io/product/cagrilintide**

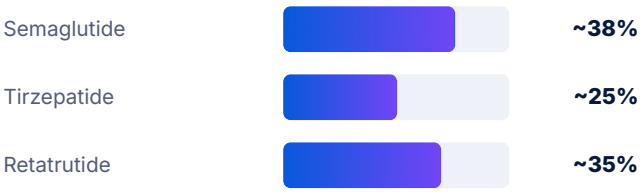
Sources: Garvey et al., NEJM 2025 (REDEFINE 1); REDEFINE 4 topline, 2026; FDA filing status, October 2026.

01 · PROTEIN

Protein Is Not Optional

GLP-1 drugs cut your appetite hard. If you don't eat enough protein and use your muscles, a big share of the weight you lose comes from muscle. You end up smaller but weaker.

HOW MUCH OF THE LOSS IS LEAN MASS



Share of total weight lost that was lean mass in DXA substudies. Lean mass includes water and organs, so true muscle loss is smaller — but not zero.

What losing muscle means

Less strength for daily life, a slower metabolism that makes weight easier to regain, and weaker support for joints and bones.

DAILY TARGET

1.2–1.6 g

per kg of goal weight

For most people that is about 80–130 g a day. Example: goal weight 180 lb (82 kg) = 98–131 g. Use goal weight, not current weight. Split it into 25–30 g per meal. Don't go above 2 g per kg.

Easy protein	Portion	Protein
Chicken or fish	3 oz	~21 g
Protein shake	1 scoop	20–25 g
Greek yogurt	6 oz	~15 g
Cottage cheese	½ cup	~14 g
Tofu	½ cup	~10 g
Egg	1 large	~6 g

A SAMPLE DAY, NO BIG MEALS

≈ 119 g

Breakfast
Greek yogurt + a scoop of protein
40 g

Lunch
Chicken salad (4 oz chicken)
30 g

Snack
Cottage cheese, ½ cup
14 g

Dinner
Salmon, 5 oz
35 g

Protein first

Eat it before anything else on the plate.

Drink it

Shakes are the easiest way to close the gap.

Small meals

Every 3–4 hours beats big meals, which bring on nausea.

Never hungry and barely eating? Your dose is too high. These drugs should quiet your appetite, not shut it off. Step your dose down.

Sources: Mozaffarian et al., Obesity 2025; Wilding et al., NEJM 2021; Look et al., Diabetes Obes Metab 2025; Coskun et al., Lancet Diabetes Endocrinol 2025.
Kidney disease? Get your protein target from your doctor.

01 · KLOW & GLOW

KLOW & GLOW

Recovery blends that put several peptides in one vial, so you don't buy and mix them separately. People use them for injuries, skin and hair, and gut and joint inflammation.

MINIMUM	MAXIMUM
2 mg	**5 mg**

Daily, 5 on / 2 off · Community practice





KLOW 80 mg · research vial
For research use only

How to dose it

Community use is 4–5 mg a shot — 15–19 units for KLOW mixed with 3 mL — five days on and two off. Many people start at 2–3 mg for the first few days to see how they handle the copper sting. Most run 8–12 weeks, then take 4 weeks off; some prefer shorter 4–8 week blocks. Use the full 3 mL of bac water: more water means less sting.

> **One ingredient apart.** GLOW is KLOW without KPV. Pick KLOW if gut issues or skin flares are part of why you are taking it; otherwise GLOW does the same recovery work.

What is in the blend

mg per vial



KLOW 80 mg

GLOW 70 mg — same, without KPV

Stinging and red marks are normal with copper

- GHK-Cu often burns going in and can leave a red mark or small bump. It usually fades in a day or two.
- Room-temperature liquid, the full 3 mL of water, a slow push and rotating spots all help.
- Get it checked if redness keeps spreading or gets worse after 2 days, or the spot turns hot, hard or painful.

KLOW and GLOW product pages — **standardlabs.io/product/klow-blend**

Doses are community practice, not trial doses. Sources: Pickart & Margolina, Int J Mol Sci 2018; Vasireddi et al., HSS Journal 2025; FDA PCAC, July 2026; USADA.

01 · KLOW & GLOW

What's Inside the Blend

Each peptide targets healing from a different angle. GLOW has the first three; KLOW adds KPV.

GHK-Cu

50 mg · both

A copper peptide your body makes naturally; levels drop with age. It signals collagen renewal, skin density and repair. Skin-cream studies in people show firmer skin and fewer wrinkles. Hair growth has only been shown in lab and animal studies, and injected use only in animals.



BPC-157

10 mg · both

Based on a protein found in stomach juice. Used for tendon, ligament and gut healing. Strong results in animal studies; only small, uncontrolled reports in people so far.

TB-500

10 mg · both

A short piece of thymosin beta-4, a repair protein. Used for muscle and soft-tissue recovery and flexibility. No controlled human trials of TB-500 itself.

KPV

10 mg · KLOW only

Lysine-Proline-Valine, the tail end of alpha-MSH, a natural anti-inflammatory hormone. Used to calm gut inflammation and skin flares. It healed colitis in mice; no human trials yet. An FDA panel reviewed it in July 2026.

Why people like it

One vial, one shot, four peptides that target healing from different angles.

The evidence gap

No study has tested the four together, and none are FDA approved. An FDA panel backed compounding three of them in July 2026 — an advisory vote, not an approval.

Banned in sport

BPC-157 is on the anti-doping (WADA) banned list for tested athletes.

CHOOSING BETWEEN THEM

KLOW

Gut issues, skin flares, or a mix of recovery and inflammation. The KPV is the difference.

GLOW

Recovery and skin without the gut focus. One fewer ingredient to account for.

Neither, yet

If you cannot say what each ingredient is for, start with a single peptide and one clear question.

> **GHK-Cu is the big one:** 50 of the 80 mg. That is why KLOW is blue.

Read the certificate before you mix

standardlabs.io/product/glow-blend

Sources: Pickart & Margolina, Int J Mol Sci 2018 (GHK-Cu); Vasireddi et al., HSS Journal 2025 (BPC-157 review); FDA PCAC, July 2026.

01 · TESAMORELIN

Tesamorelin

A GHRH analogue that prompts your own growth-hormone release. It is approved to reduce visceral fat in adults with HIV-related fat accumulation.



MINIMUM
1 mg

MAXIMUM
2 mg

Once a day · Based on the FDA label



How to dose it

The label dose is 1.4 mg once a day; the older formula was 2 mg. In the community, 1–2 mg a night is the norm. Some start at 1 mg for the first week or two, and many run 12–16 weeks. Inject into the belly, which is where the label says to use it. Let it reach room temperature first.

> **Same time every day**, ideally on an empty stomach at night.



Visceral fat sits deep, around the organs — not the fat you can pinch.

15.2%
reduction in visceral fat from baseline at 26 weeks; placebo rose 5.0%

37%
lower liver fat vs placebo at 1 year, with less liver scarring

1.4 mg
the label dose; 2 mg is the older formula and a common community dose

Watch for

- Injection-site redness, joint and muscle aches, swelling.
- Raises IGF-1 and can raise blood sugar. Check IGF-1 with bloodwork if you stay on it long term.
- The label says not to use it with active cancer, pituitary problems or pregnancy.

What it targets

Not the fat you can pinch. Visceral fat sits deep in the belly, wrapped around the organs, and it is the kind tied to diabetes, heart disease and fatty liver.

Status: FDA approved for HIV-related visceral adiposity. Not authorised in Canada for general use.

Product page and certificate **standardlabs.io/product/tesamorelin**

Sources: Tesamorelin prescribing information; Falutz et al., NEJM 2007; Stanley et al., Lancet HIV 2019 (liver).

01 · CJC-1295 + IPAMORELIN

CJC-1295 + Ipamorelin

The popular bedtime stack for sleep, recovery and body composition. Both signal your pituitary to release more of your own growth hormone.

CJC-1295 (NO DAC)	IPAMORELIN
100–300 mcg	**100–300 mcg**

Nightly, 5 on / 2 off · Community practice



CJC-1295 (no DAC) + ipamorelin
For research use only

How to dose it

Start around 100 mcg of each in the same shot, at bedtime, five nights on and two off. Work up slowly; most people stay between 100 and 300 mcg of each. Inject on an empty stomach, two or more hours after eating, because food blunts the pulse. Let it reach room temperature first.

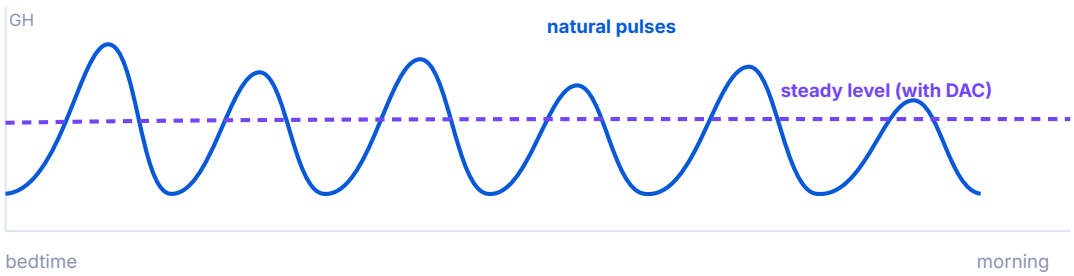
> **Get CJC without DAC.** DAC makes it last a week instead of minutes, which swaps natural pulses for a constant level.

Why the pair works

CJC-1295 presses the GHRH switch. Ipamorelin presses the ghrelin switch. Together they release more growth hormone than either alone, in short natural pulses. Ipamorelin is the “clean” one in its class: it doesn't raise cortisol or prolactin like older options.

Watch for

Both raise IGF-1 and can raise blood sugar and cause water retention. No published trials have tested this stack. Ipamorelin's one gut-recovery trial showed no benefit vs placebo. It is banned for tested athletes.



Natural growth-hormone pulses (blue) versus the steady level produced by a DAC-modified analogue (violet). Schematic, not a pharmacokinetic curve.

Product page and certificate **standardlabs.io/product/cjc-1295-no-dac-ipamorelin**

Doses are community practice; no trial doses exist for this stack. Sources: Beck et al., Int J Colorectal Dis 2014 (ipamorelin); Teichman et al., JCEM 2006 (CJC-1295).

01 · MOTS-C

MOTS-c

A small peptide your mitochondria make, sometimes called an “exercise mimic.” It flips on AMPK, the body's main energy switch. People use it for steadier energy and as a metabolic reset after a fat-loss cycle.

MINIMUM	MAXIMUM
2.5 mg	**10 mg**

2–3 times a week · Community practice

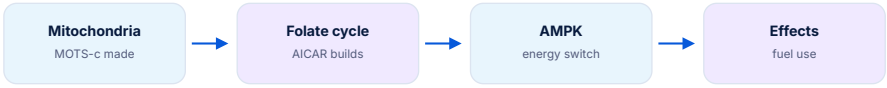




MOTS-c · research vial
For research use only

How to dose it

Most people use 5 mg a shot, two to three times a week, for 4–8 weeks, then take 4 weeks off. First-timers often start at 2.5 mg; 10 mg has not been shown to work better. A 10 mg vial with 1 mL of bac water makes 5 mg = 50 units. Let it reach room temperature first.



What we actually know

Mice	Prevents weight gain and insulin resistance; old mice doubled treadmill capacity.
People	Muscle MOTS-c rose about 12-fold after cycling — part of the exercise response, not proof that injecting it helps.
One trial	CB4211 in 20 people, 4 weeks: lower liver enzymes and blood sugar, but liver fat fell no more than placebo. Development stopped.
No trials	Injected MOTS-c itself. Long-term safety is unknown.

Not a stimulant

Caffeine gives a fast jolt that fades in a few hours and can bring jitters, a crash and worse sleep. MOTS-c works on how cells use fuel. Users describe steadier energy that builds over a couple of weeks — that is what people report, not what trials have shown.

Status: not FDA approved. An FDA panel voted 7–5 in July 2026 to allow compounding, not yet final. Banned in tested sports since 2025.

Watch for: injection-site redness and early tiredness; low-blood-sugar signs (shaky, sweaty, lightheaded), especially with a GLP-1.

Product page and certificate **standardlabs.io/product/mots-c**

Doses are community habits, not trial doses. Sources: Lee et al., Cell Metab 2015; Reynolds et al., Nat Commun 2021; CB4211; FDA PCAC 2026; USADA 2025.

01 · SEMAX & SELANK

Semax & Selank

Two brain peptides approved in Russia as nasal drops: one for focus, one for calm. The human research is small, so stick to the label-style amounts.

Semax

Approved in Russia

DAILY	SCHEDULE
200–1,200 mcg	**Mornings**

2 weeks on · nasal

What it is. Built from a fragment of ACTH, a brain hormone. Used for focus, memory and mental stamina under heavy workloads.

How it works. Raises BDNF, a growth factor for brain cells — shown in animals.

Evidence. Approved in Russia for stroke and cognitive problems. Only small Russian human studies.

US status. Not approved. An FDA panel voted 8–5 in July 2026 to allow compounding for migraine and stroke-related uses; not final.

Watch for. Can overstimulate. Take it early, skip caffeine with it, and avoid it with anxiety or seizure history.

Selank

Approved in Russia

DAILY	SCHEDULE
250–900 mcg	**2–3× a day**

2 weeks on · nasal

What it is. A copy of tuftsin, a natural immune peptide. Used for calm, steady mood and stress resilience without drowsiness.

How it works. Balances serotonin and dopamine signalling; calming without sedation.

Evidence. Approved in Russia for anxiety (2009). In a 62-person trial it matched a benzodiazepine; there were no placebo trials.

US status. Not approved; never reviewed by the FDA.

Watch for. Mild headache early on. Check with a doctor if you take anxiety meds, antidepressants or sedatives.

Semax for the morning, Selank for the stress. Most people don't need both every day. Pick the one that matches the problem you are trying to solve, and give it two weeks before you judge it.

CHOOSE ONE, NOT BOTH

Semax

Morning focus, mental stamina, a demanding work block. Take it early; it can overstimulate.

Selank

Stress, tension, a calmer mood without drowsiness. Better for the end of the day.

Both

Possible, but then you cannot tell which one is doing what. Add one, wait two weeks, then decide.

Semax and Selank product pages — **standardlabs.io/product/semax**

Doses from the Russian Semax and Selank labels; daily ranges shown are nasal use. Sources: Semax label; Selank label; Zozulya et al. 2008; FDA panel, July 2026.

01 · SEMAX & SELANK

Using Semax & Selank

Both are approved in Russia as nasal drops, and that is how they were tested. Sellers ship them as powder, which you can turn into a nasal spray or inject.



MAKE THE SPRAY

Peptide	Vial + bac water	Strength	Per spray (0.1 mL)
Semax	10 mg + 10 mL	1 mg/mL	100 mcg
Selank	5 mg + 5 mL	1 mg/mL	100 mcg

Mix in the vial, then draw it into a clean metered nasal spray bottle. Bottles vary: pump 10 sprays into a syringe to check yours really gives 0.1 mL per spray.

Important: the Russian Selank label product is **1.5 mg/mL**. At that concentration, 2 drops per nostril three times a day is about 900 mcg/day. At the 1 mg/mL spray above, the same routine is about 600 mcg/day. Both are label-style ranges; do not mix the two concentrations up.

HOW TO SPRAY IT

1. **Blow your nose.** Start clear so the spray can absorb.
2. **Head slightly forward.** Tip the nozzle toward the outer side of the nostril, away from the middle wall.
3. **Spray and breathe gently.** Don't sniff hard; a hard sniff sends it down your throat.
4. **Wait 5 minutes.** Don't blow your nose. Alternate nostrils each spray.

LABEL VS COMMON USE

	Semax	Selank
Russian label	2–3 drops/nostril up to 4×/day, 10–14 days (≈800–1,200 mcg)	2 drops/nostril 3×/day, 14 days (≈900 mcg at 1.5 mg/mL)
Common nasal	2–6 sprays/day (200–600 mcg), mornings	1 spray/nostril 2–3×/day (400–600 mcg)
By injection	200–400 mcg under the skin; no human safety data for this route	250–500 mcg under the skin, once a day

> **More is not better.** Stick to the amounts above and take a 1–3 week break after each 2-week course. Keep the spray in the fridge, toss it after 28 days or if it turns cloudy.

Semax and Selank product pages **standardlabs.io/product/selank**

Label doses from the Russian Semax and Selank instructions. Common-use and injection amounts are community conventions, not trial doses. Sources: Semax label; Selank label; community dosing conventions. Not trial doses.

01 · THYMOSIN ALPHA-1

Thymosin Alpha-1

An immune peptide approved in about 35 countries, but not the US. It helps your T-cells do their job.



MINIMUM
1 mg

MAXIMUM
1.6 mg

Twice a week · Based on the label abroad





Schematic, not a verified structure

T-cells are the immune system's targeted defenders.

How to dose it

The label dose is 1.6 mg under the skin twice a week, three to four days apart. Some people start at 1 mg to see how they feel. More hasn't been shown to help. Let it reach room temperature before you inject.

Twice a week, like Monday and Thursday. Easy to remember.

What it does

A natural thymus peptide that strengthens T-cells. People use it for immune support and stubborn infections.

What the evidence says

Approved abroad for hepatitis B and to boost vaccines in weak immune systems. A 1,106-person sepsis trial showed no survival benefit.

FORM
Injection under the skin.

CYCLE
8–12 weeks on, then about a month off.

US STATUS
Not approved. An FDA panel voted 4–17 against compounding it in 2024.

Watch for

- Mostly mild: injection-site redness or soreness.
- Check with a doctor first if you have an autoimmune condition or take immune-suppressing drugs.

THE TESTS TRIAL, IN CONTEXT

1,106 adults

Sepsis patients in 22 centres in China; 28-day mortality 23.4% vs 24.1%.

No clear benefit

The trial did not show a mortality benefit. That does not tell us about other uses or other populations.

Do not over-read it

A failed sepsis trial is not proof that the peptide does nothing. It is proof that this use did not work.

Compound page and certificate **standardlabs.io/compound/thymosin-alpha-1**

Sources: thymosin alpha-1 label; FDA briefing and Dec 2024 PCAC vote; TESTS, BMJ 2025.

02 · RESEARCH SUPPLIERS

Canadian Research Suppliers

A Canadian source for research compounds, laboratory supplies and clear product information.

Standard Labs is a Canadian research compound and laboratory supply company. Our catalogue and educational resources bring product information, compound profiles and practical reference tools into one place.

In the industry, businesses in this category are commonly called **research peptide suppliers** or **research chemical suppliers**. These terms describe the research supply channel.



Standard Labs research vial

Canadian, accessible

Start with standardlabs.io for our catalogue, research resources and direct contact options. Keep product questions and order enquiries with the same Canadian company.

Information in context

Use the full compound name, stated amount and available batch documentation together. Clear records help identify the material being reviewed.

Research use, clearly defined

Research-use-only materials are supplied for laboratory research. That designation does not establish approval for human use. Read product documentation for the specific material and batch.

Explore the Canadian catalogue

View at standardlabs.io →

02 · RESEARCH SUPPLIERS

When Your Order Arrives

A straightforward receiving checklist for your Standard Labs order.

01 · Review the package

Check that glass, caps and seals are intact before opening or preparing any material.

02 · Confirm the contents

Compare compound names and quantities with your order confirmation.

03 · Keep the identifiers

Record any lot or batch identifiers shown on the vial and associated documents.

04 · Follow product instructions

Use the handling and storage information supplied for the specific material.

05 · Keep a clear record

Save the arrival date, order number and relevant documentation together.

Need help with an order?

Photograph the package and any item you have questions about. Contact Standard Labs with your order number and a clear description so we can review the enquiry. Keep affected material separate while awaiting clarification.

Contact Standard Labs

View at standardlabs.io →

02 · RESEARCH SUPPLIERS

Understanding Product Records

Know what a label and certificate tell you, and where to ask for clarification.

Compound identity

Use the full compound name as your starting point. An abbreviation is a convenient reference, not a substitute for the stated identity.

Amount and concentration

The amount in a vial and the concentration of a prepared solution are different quantities. Read the units carefully and retain calculation inputs.

Certificate of analysis

A certificate of analysis (COA) reports the tests and results listed on that document. Read the sample or batch identifier, methods, results and report date together.

Scope matters

A purity result is not the same as a sterility or endotoxin result. A COA supports the measurements it reports; it does not establish clinical suitability.

Keep your questions with Standard Labs

Use our Compound Library for background information and contact us about product details or available documentation. Include the compound name and relevant order or batch identifier.

Compound Library	View at standardlabs.io →
Product and order enquiries	View at standardlabs.io →

02 · RESEARCH SUPPLIERS

Industry Names & Abbreviations

Connect common research catalogue terminology with the underlying compound.

Full name	Description	Industry shorthand
Retatrutide	Triple agonist	GLP-3, GLP-3 RT, RT, Reta, 3RT
Retatrutide + cagrilintide	Blend	GLP-5
Tirzepatide	GLP-1 / GIP agonist	GLP-2 TZ, GLP-2 T, TZ, Tirz
Semaglutide	GLP-1 agonist	GLP-1 S, GLP-1 SG, SG, Sema
Cagrilintide	Amylin analogue	GLP-1 C, Cagri
Tesamorelin	GHRH analogue	Tesa
Ipamorelin	GH secretagogue	Ipa
CJC-1295 (no DAC)	GHRH analogue	CJC, Mod GRF 1-29
BPC-157	Body Protection Compound	BPC
TB-500	Thymosin beta-4 fragment	TB, TB4
GHK-Cu	Copper peptide	GHK, copper peptide
GHK-Cu + BPC-157 + TB-500	Blend	GLOW
GHK-Cu + BPC-157 + TB-500 + KPV	Blend	KLOW
MOTS-c	Mitochondrial peptide	MOTS-c, MOTSc

GLP-2 and GLP-3 labels

There is no GLP-3 hormone. GLP-2 is a different hormone. Catalogue shorthand may refer to receptor counts rather than a compound's formal name.

Use the full identity

Read the actual compound name in the product information and available documentation. Similar abbreviations can refer to different compounds.

03 · GEAR

Needle Sizes, Explained

The wrong needle can hurt more, bend, or chew up the rubber top on your vial. Gauge is backwards from what you would expect: the higher the number, the thinner the needle.

Gauge	Length	Best for	Feel
25G	⅝ in (16 mm)	Filling, assembled syringe	Thickest; most likely to core
27G	½ in (13 mm)	Filling	Thick, but easier on small vials
30G	½ in (13 mm)	Filling and escape needle	Thin; good for rubber tops
31G	5/16 in (8 mm)	Dosing syringe	Thin and short; fine markings
33G	4 mm	Pen needle	Thinnest; barely felt

Why gauge is backwards

A 33G needle is much thinner than a 25G. Thinner hurts less but bends more easily. That is why a thin needle is good for the skin and a thicker one is better for moving liquid through a rubber stopper.

What is coring?

A needle can punch a tiny plug out of the rubber stopper. After enough punctures the top can leak, let air in, or drop rubber bits into the peptide. Thicker needles core more often; a fresh spot and a bevel-up entry help.

THE RIGHT NEEDLE FOR EACH JOB

Mixing bac water	3 mL syringe, 25–30G. Big enough to move 1–3 mL in one draw.
Filling a cartridge	3 mL syringe + a 30G escape needle. Thin needles leave room for two in the small top.
Dosing by syringe	1 mL insulin syringe, 31G. Thin and short, with fine unit markings.
Dosing with a pen	Pen needle, 32–33G × 4 mm. Thinnest of all.

THREE MISTAKES

Mixing with a dosing needle

31G is too thin for a rubber stopper. It bends, dulls, and may leave a rubber fragment behind.

Reusing a needle

A used needle is dull, no longer sterile, and more likely to hurt or leave a mark.

Choosing by length alone

Gauge and length do different jobs. Match both to the task, not to what is already in the drawer.

Syringes, needles and pen supplies — **standardlabs.io/product-category/accessories**

Never use a dosing needle for mixing: it is thin enough to bend and dull in a rubber top. One needle, one job.

03 · GEAR

Preparation Supplies

Choose a complete kit or individual supplies from the Standard Labs catalogue.



Reconstitution & Administration Kit

CAD $20.00

Includes 10 mL bacteriostatic water, two 3 mL mixing syringes, ten Easy Touch 31G syringes and twenty alcohol prep pads. Compounds sold separately.

View product at standardlabs.io →



Bacteriostatic Water

From CAD $5.00

Choose a 3 mL or 10 mL option on the product page. Select the diluent and volume specified for the material and applicable laboratory procedure.

View product at standardlabs.io →

Match supplies to the task

Keep mixing and measurement supplies separate, confirm their markings and compatibility, and follow product-specific handling instructions.

Prices in CAD, checked October 31, 2026. Options and availability may change; confirm the selected product, tax and shipping online.

03 · GEAR

Handling Needles

A few habits keep your vials clean, your needles sharp and your peptide uncontaminated.



Go in bevel up (slanted side up) at about 45°, then straighten. It may reduce coring; the size of the effect is not well established. Use a fresh spot on the top each time.

Two needles in one cartridge top

Filling a cartridge takes two needles at once: the syringe and the escape needle. The top is small, but it fits both, even with a thicker 25G on the syringe.

Go slow, push straight in, and keep them as far apart as the top allows so they don't rub or tear the rubber between them.

Four habits

Don't touch the hub. Twist the needle on by its cap. Touch nothing that touches the peptide.

Bevel up, then straighten. Enter the rubber top at about 45°, slanted side up.

Use a fresh spot. Move around the stopper instead of boring one hole.

Use once. A new needle for every transfer; sharps container after.

Never use a dosing needle for mixing. It is thin enough to bend and dull in a rubber top. The needle that draws from the vial is not the needle that goes into the skin.

WHAT NOT TO DO

Don't stab straight down

A 90° entry with a thick needle is more likely to core the stopper.

Don't touch the hub

The hub is the part that connects to the syringe. Keep fingers off anything that touches the peptide.

Don't reuse the top spot

Move around the stopper. One hole, punctured repeatedly, is the one that leaks.

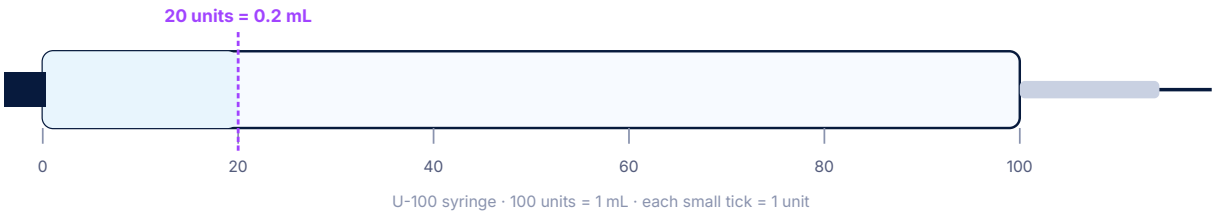
Needles and syringes — **standardlabs.io/product-category/accessories**

Coring risk falls with thinner needles and a bevel-up entry, but no technique makes a rubber stopper last forever. Inspect the top before each use.

03 · GEAR

Dosing Syringes

Review the actual barrel capacity, needle length and graduations for the selected syringe. A U-100 scale represents volume: 100 units equals 1 mL.



Reading a U-100 syringe

These are U-100 syringes: 100 units = 1 mL, so each unit is 0.01 mL. Use the math in Chapter 04 to turn your dose in mg into units, then draw to that line.

Read the line at the flat top of the black plunger, not the pointed tip.

Three rules

Not for mixing. These thin needles bend in rubber tops. Mix with a filling syringe.

Room temperature. Let the dose reach room temperature before injecting.

Use once. New syringe every time. Dispose in a sharps container.



Easy Touch 31G U-100 Syringes

CAD $10.00

Ten-pack listing. Confirm the supplied capacity and maximum marking on the actual syringe before measurement.

View product at standardlabs.io →

THREE COMMON ERRORS

Reading the needle tip

Read the flat top of the plunger, not the pointed tip. The tip adds a few units you did not intend to draw.

Using the wrong scale

A 0.3 mL or 0.5 mL syringe is not marked like a 1 mL syringe. Check the barrel before you convert.

Drawing with the mixing needle

The needle that went through the rubber is dull. Swap to a fresh 31G before the skin.

31G insulin syringes — standardlabs.io/product/easytouch-31g-insulin-syringes

Prices in CAD, checked October 31, 2026. Options and availability may change; confirm the selected product, tax and shipping online.

03 · GEAR

Reusable Pen Options

Choose the pen on its own or a starter kit with associated accessories.



V3 Reusable Injection Pen

CAD $25.00

Reusable pen listed for compatible 3 mL cartridges. Confirm the particular cartridge and needle fit for your selected configuration.

View product at standardlabs.io →



V3 Precision Pen Starter Kit

CAD $40.00

Includes the V3 pen, two glass cartridges, two transfer syringes, venting needles, twenty pen needles and twenty alcohol prep pads. Review current contents online.

View product at standardlabs.io →

> Priming, loading, reset and dial limits differ between devices. Use the instructions for your exact model.

Prices in CAD, checked October 31, 2026. Options and availability may change; confirm the selected product, tax and shipping online.

03 · GEAR

Choosing Compatible Hardware

Match the device, cartridge and consumables before building your supply list.

Start with the model

Use product information for the exact pen selected. Generic illustrations do not establish that every device loads or resets the same way.

Check cartridge fit

Confirm nominal capacity, physical dimensions and closure type against device requirements.

Check the markings

Understand the measurement scale and mechanical limits. A dial position is meaningful only with the appropriate device configuration and concentration.

Keep consumables separate

Use compatible, appropriately specified consumables. Packaging appearance does not establish verified sterility.

V3 pen and compatibility details

View at standardlabs.io →

03 · GEAR

Cartridges & Pen Supplies

Keep the device and its supporting supplies together.



3 mL Glass Cartridges

From CAD $9.00

Available in 3-, 5- and 10-pack options. Confirm fit with the selected pen and the requirements of your laboratory procedure.

View product at standardlabs.io →



Pen Starter Kit

CAD $40.00

A bundled option with the pen, cartridges, transfer and venting tools, pen needles and alcohol prep pads.

View product at standardlabs.io →

Fit first

Nominal capacity alone does not establish device fit. Check cartridge dimensions and closure requirements.

Scope of documentation

Clean packaging should not be treated as a verified sterility specification. Read the product documentation.

Prices in CAD, checked October 31, 2026. Options and availability may change; confirm the selected product, tax and shipping online.

03 · GEAR

Cases for Your Setup

Keep vials and dry accessories organized with purpose-built storage options.



Compact Peptide Case

CAD $12.00

Four-slot case for standard 3 mL vials up to 17 mm in diameter. Case only; vials and supplies are not included.

View product at standardlabs.io →



Compact Peptide Travel Case

CAD $20.00

Removable SnapCore vial tray with separate accessory compartments. An organizer does not provide active cooling or replace contents' storage requirements.

View product at standardlabs.io →

Prices in CAD, checked October 31, 2026. Options and availability may change; confirm the selected product, tax and shipping online.

03 · GEAR

Using Your Pen

Once a cartridge is filled, a pen makes every dose quick and exact. Here are the parts and the routine.



Schematic. Your pen's manual is the final word on its own parts and priming.

Prime every new cartridge

Dial 2 units, point the needle up, tap out air, and press until a drop appears. That first drop proves the dose will come out.

THE ROUTINE

1. Fill a cartridge from the mixed vial using a syringe and an escape needle.
2. Unscrew the cartridge holder, drop the cartridge in metal-cap end first, and screw it back on.
3. Wipe the cartridge top with alcohol. Peel the tab, screw on a new needle, pull off both caps.
4. Prime: dial 2 units, needle up, tap out air, press until a drop appears.
5. Dial your dose in units.
6. Pinch the skin, insert straight in, press the button all the way, and hold for 10 seconds.
7. Recap with the outer cap, unscrew, and drop the needle in a sharps container.
8. Cap the pen and keep it in the fridge. Let it reach room temperature before the next injection.

IF SOMETHING GOES WRONG

No drop when priming

Check the cartridge is loaded metal-cap end first, the needle is tight, and there is liquid left. Repeat 2 units.

Dose window will not return to zero

Do not force the dial. Reset per the manual; a jammed pen can deliver the wrong dose.

Cartridge leaks

Stop. A cracked cartridge is not sterile. Discard it, clean the holder, and start with a new one.

PEN MAINTENANCE

Wipe, don't soak

Clean the holder and the outside with a damp cloth or alcohol wipe. Never immerse the pen.

Store it dry

A bathroom shelf or a hot car is the wrong place. Heat and humidity are hard on the mechanism.

Inspect the cartridge

Cracks, cloudiness or a loose plunger mean replace it. A leaking cartridge is not sterile.

V3 pen and accessories **standardlabs.io/product/v3-reusable-precision-injection-pen-starter-kit**

Device-specific priming and reset steps vary; follow the manufacturer's manual.

03 · GEAR

Cleaning & Disposal

The cheapest gear in this guide does the most to keep you safe: alcohol pads to keep germs out, and a safe place for used needles.

MUST HAVE

70% isopropyl alcohol pads

70% is the strength that actually kills germs. Higher concentrations can coagulate surface proteins and penetrate less effectively. Every pad is sealed so it stays clean.

Wipe and let air-dry about 30 seconds. Wet alcohol stings and can be carried into the vial. Don't blow on it.

EVERY TIME

What to wipe

Every vial top — peptide and bac water, before each needle goes in.

The cartridge top — before each new pen needle.

Your skin — where you are about to inject.

Getting rid of used needles

You don't need to buy a sharps container. A thick plastic bottle with a screw-on lid works, like a laundry detergent or sturdy juice jug. Thin water bottles can be poked through, so skip those.

Drop needles in point first, keep the lid tight, label it “Sharps, do not recycle,” and throw it out when it is three-quarters full. Never toss loose needles in the trash.

A CLEAN BENCH IN THREE MOVES

Clear

Remove food, pets and clutter. Work on a washable surface.

Clean

Wipe the surface. Wash your hands. Let the alcohol dry.

Contain

Sharps container within reach before the first needle is opened.

Alcohol pads and supplies

View reconstitution kit at standardlabs.io →

Check local rules for sharps disposal; some areas have free drop-off sites. Cleaning a surface does not establish sterility.

04 · MIX & DOSE

How to Mix ("Reconstitute") a Vial

Use a 3 mL filling syringe with a thin needle. Work on a clean surface, go slowly, and never touch the needle or the rubber tops after wiping them.

THE 10 MG EXAMPLE

10 mg + 1 mL = 10 mg/mL

A standard 10 mg vial holds about 3 mL. Use 1 mL of bac water, not 10 mL — the vial cannot hold it, and the concentration would be wrong. If you have a larger vial, check its capacity before you choose the volume.

1. **Warm up and wipe**

   Let both vials reach room temperature: cold powder dissolves slowly, tempting you to shake, and can draw in moisture. Pop the caps, wipe each top with alcohol, and let it dry.

2. **Draw the bac water**

   Vial standing flat: push in as much air as the water you will take. Then flip it, keep the tip in the liquid, and pull to your amount.

3. **Go in at 45°, bevel up**

   Hold the needle at about 45° with the slanted side of the tip facing up, push through the rubber, then straighten slightly. This protects the stopper.



A standard 10 mg vial.
Check the capacity, not the label claim.

THREE CHECKS BEFORE THE NEEDLE

Capacity

A 10 mg vial holds about 3 mL. If the volume you planned is larger than the vial, stop and recalculate.

Diluent

Use the diluent specified for the compound. Bacteriostatic water is common, not universal.

Temperature

Both vials at room temperature. Cold glass and cold powder dissolve more slowly and invite shaking.

Use only the diluent specified for your peptide. Bacteriostatic water contains benzyl alcohol; it is not the right diluent for every compound.

04 · MIX & DOSE

Finishing the Mix

Last three steps, then label it and into the fridge.

4

Tilt it and let it run down the glass

Tilt the vial about 45° and aim the tip at the inside wall. Push slowly so the water trickles down the side. A hard spray onto the powder makes it foam, and foaming can damage the peptide.

5

Swirl gently, never shake

Roll the vial between your fingers or swirl slowly until fully clear. Shaking creates foam that can break peptides down. If powder remains, wait a few minutes and swirl again.

6

Draw a dose

Flip the vial, keep the tip in the liquid, and pull to your units. Tap out bubbles and re-check the line. Read the flat top of the plunger, not the pointed tip.

LABEL IT LIKE THIS

Retatrutide
10 mg · lyophilized · Lot RT-2410
+1 mL BAC = 10 mg/mL
Mixed 10/30 · toss 11/27

Write the amount of bac water, the strength it makes, the mix date and the toss date (about four weeks later). No room on the label? Use masking tape or a blank vial sticker.

Three things that ruin a mix

Shaking. Foam, aggregation, lost peptide.

Spraying water onto the powder. Aim at the glass, not the cake.

Too much water for the vial. Check capacity; a 10 mg vial is not a 10 mL bottle.

Plan on about four weeks per mixed vial in the fridge. Never freeze a mixed vial. Once bac water is added, freezing will ruin it.

IF IT DOES NOT DISSOLVE

Wait and swirl again

Some cakes take 10–15 minutes. Set the vial down, wait, then roll it gently between your fingers.

Check the diluent

The wrong diluent can leave powder undissolved or denature the peptide. Confirm before adding more.

Do not heat or shake

Warm water, a vortex or vigorous shaking can damage the peptide. Time and gentle motion are safer.

Most bad vials are made at home: shaking, foaming, or spraying water hard onto the powder. Swirl, never shake.

04 · MIX & DOSE

Reconstitution & Dosing Math

Peptides ship as a dry powder. Add bacteriostatic water to dissolve it, then measure each dose on an insulin syringe. Only reconstitute or inject at room temperature.

CONCENTRATION

mg in vial ÷ mL of water = mg per mL

The same mass in less water is a stronger solution. The same mass in more water is weaker.

UNITS TO DRAW

(dose in mg ÷ mg per mL) × 100

This works for a U-100 syringe, where 100 units = 1 mL.

The easy rule

1 mL of water for every 10 mg

That makes every vial 10 mg per mL, so 1 unit = 0.1 mg and your units are just your dose in mg × 10. No calculator needed, and the dose lands on an easy-to-read line when you draw. Retatrutide 4 mg = 40 units; 8 mg = 80 units.

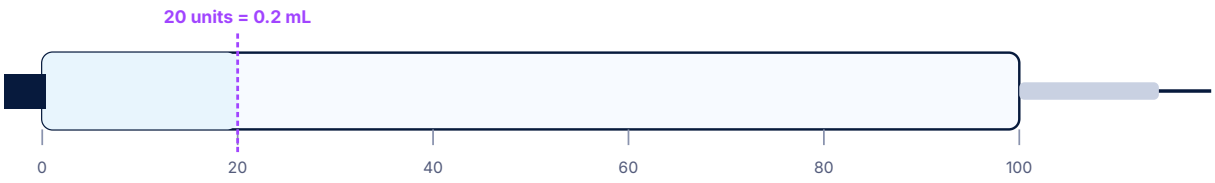
When the easy rule does not fit

Small doses (under 1 mg). Add more water so the dose is not just 1–2 units. A 5 mg vial with 5 mL is 1 mg/mL; 250 mcg is 25 units.

Large vials (over 30 mg). Use the full 3 mL the vial holds and get your units from the calculator. The extra water also eases the burn KLOW's GHK-Cu is known for.

Worked examples

10 mg + 1 mL	10 mg/mL; 2 mg = 20 units
20 mg + 2 mL	10 mg/mL; 4 mg = 40 units
60 mg + 3 mL	20 mg/mL; 12 mg = 60 units
10 mg + 2 mL	5 mg/mL; 0.25 mg = 5 units



U-100 syringe · 100 units = 1 mL · each small tick = 1 unit

Read the line at the flat top of the black plunger, not the pointed tip. A 10 mg vial mixed with 1 mL is 10 mg/mL. A 2 mg dose is 20 units. Tap out bubbles, re-check the line, then inject.

Standard Labs peptide calculator **standardlabs.io/peptide-calculator**

Never freeze mixed peptides, and never freeze bac water. Only unmixed powder goes in the freezer.

04 · MIX & DOSE

How Long Mixed Peptides Last

You will see “28 days” everywhere. Here is what that number really means, and what actually decides how long a mixed vial stays good.

Where the 28-day rule comes from

It is a germ rule, not a breakdown date. US hospital standards say an opened multi-dose vial is good for 28 days unless the maker says otherwise, because the preservative — the benzyl alcohol in bac water — is only tested to keep bacteria down for 28 days. So it says nothing about when the peptide itself starts to break down. That is different for every peptide.

What actually decides it

The peptide. Some stay stable in liquid for weeks, some for hours.

Every needle stick. Each puncture is a chance for germs. Swab the top every time and use a fresh needle.

Bac water. Its preservative is what keeps germs down for those 28 days. Always mix with bac water, and keep the bottle itself clean and dated.

Storage. Fridge, dark, never frozen. Warm hours speed up breakdown.

What the labels say

Semaglutide pen	56 days after first use
Tirzepatide pen	30 days after first use
Tesamorelin	Use right after mixing
Research vials	No tested in-use date

Some people go 60–90 days with research vials, but no study backs that. About four weeks is the safe default.

Bottom line: they all vary. About four weeks is the safe default, and many people go longer with no problem. However long you keep a vial, check it before every dose. Cloudiness, specks, a colour change, or a dose that suddenly stops working means toss it.

Tesamorelin breaks down fast. Mix small amounts and use them promptly. If you are unsure, a new vial costs less than an infection.

CHECK BEFORE EVERY DOSE

Clear, not cloudy

A clear solution is the baseline. Cloudiness that does not clear after resting is a reason to stop.

No specks or strings

Particles, sediment or a gel-like texture mean the vial is no longer suitable.

Inside the window

Write the mix date. If you cannot remember when it was mixed, do not use it.

Sources: Joint Commission and USP multi-dose vial guidance (28 days unless the manufacturer says otherwise); semaglutide, tirzepatide and tesamorelin prescribing information. Research vials have no tested in-use date.

04 · MIX & DOSE

Mixing Chart

How much bac water to add to each vial, and how many units to draw per dose. Retatrutide vials are sized so each one lasts about a month.

Peptide	Vial	Bac water	Units per dose
Retatrutide 2 mg/week	10 mg	1 mL	2 mg = 20
Retatrutide 4 mg/week	20 mg	2 mL	4 mg = 40
Retatrutide 8 mg/week	40 mg	3 mL	8 mg = 60
Retatrutide 12 mg/week	60 mg	3 mL	12 mg = 60
Tesamorelin	10 mg	1 mL	1.4 mg = 14
KLOW	80 mg	3 mL	4 mg = 15 · 5 mg = 19
GLOW	70 mg	3 mL	4 mg = 17 · 5 mg = 21
Tirzepatide 2.5 / 5 mg	10 / 20 mg	1 / 2 mL	25 · 50
Tirzepatide 7.5 / 10 / 15 mg	30 / 40 / 60 mg	2 / 2 / 3 mL	50 · 50 · 75*
Cagrilintide	10 mg	2 mL	0.25 mg = 5 · 1 mg = 20 · 2.4 mg = 48
MOTS-c	10 mg	1 mL	5 mg = 50

*Pens max out at 60 units: give 75 with a 1 mL syringe. CJC-1295 + ipamorelin: use the calculator.

Each reta vial is a month

Five weekly doses fit inside the 28-day window. The 8 and 12 mg mixes are stronger so the dose stays at 60 units, within one syringe or pen dial.

Units, not mL

U-100 syringes and pens count in units: 100 units = 1 mL. The chart gives units; the vial gives mg. Do not mix the two.

Check your vial

Run any new vial size through the calculator before your first dose. A different fill volume changes the concentration.

Label every vial. Write the peptide, the mL of water added, the concentration and the mix date. A vial you cannot identify is a vial you should not use.

Open the Standard Labs peptide calculator **standardlabs.io/peptide-calculator**

Retatrutide doses from the trials; tesamorelin from the label; KLOW, GLOW and MOTS-c from community practice, not trials.

04 · MIX & DOSE

How to Inject

Every peptide in this guide goes just under the skin, into the fat layer, not into muscle. Small needle, quick shot.

1

Clean

Wash your hands. Wipe the spot with an alcohol pad and let it dry 30 seconds.

2

Pinch

Gently pinch an inch of skin and fat. With a 4 mm pen needle you can skip this.

3

Insert

Quick and straight in at 90°. Very lean, with an 8 mm syringe? Use 45°.

4

Push slowly

Press the plunger or pen button all the way, slowly. Slower stings less.

5

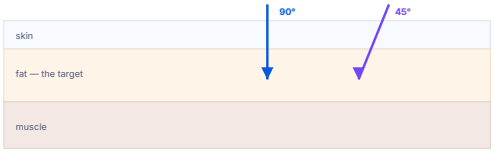
Hold

Count to 10 before pulling out (pens especially), so the full dose stays in.

6

Rotate

Next shot at least an inch away. Skip scars, moles and bruises. Don't rub after.



Schematic: subcutaneous fat sits between skin and muscle

Why the angle matters

A 4 mm pen needle is short enough to reach the fat at 90°. An 8 mm syringe needle can reach muscle in a lean person, so a 45° entry shortens the effective depth. Pinching lifts the fat away from the muscle.

Feel faint around needles? Sit down for your shots. Have a drink nearby and don't inject standing in a hot shower.

BEFORE YOU INJECT

Room temperature

Cold liquid stings more and can be harder to inject. Let the dose sit for a few minutes.

Fresh needle

Never reuse. A used needle is dull, no longer sterile, and more likely to leave a mark.

Know your units

Say the dose out loud in units before you draw. If it does not match the chart, stop.

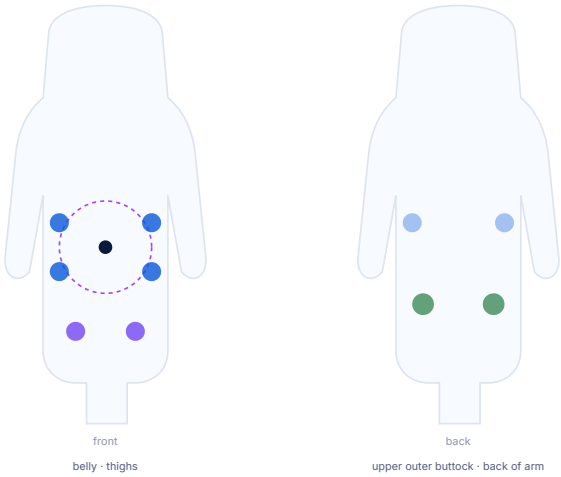
Injection safety and adverse-event guidance **standardlabs.io/compound-safety-monitoring**

Based on standard subcutaneous injection guidance for insulin and GLP-1 pens. Never reuse a needle. If you feel faint around needles, sit down for your shots.

04 · MIX & DOSE

Where to Inject

Mostly the belly, but not always. Here is where each one goes, and why.



THE FOUR SITES

Belly. Best for most people. Stay 2 inches (two fingers) from your belly button. Easiest to reach and pinch.

Front of thighs. The middle and outer front, a hand's width above the knee and below the hip.

Back of upper arms. The fleshy part. Hard to reach yourself; easier with a pen.

Upper buttocks. Upper outer area. Rarely needed, but it works.

Rotate like a clock

Pick a spot, then move clockwise each shot. The dashed circle is the 2-inch no-go zone around your belly button. Rotating stops lumps (lipohypertrophy), which make doses absorb unevenly.

BY PEPTIDE

Peptide	Site	Why
Retatrutide, tirzepatide, cagrilintide	Belly, thigh or back of arm	Absorbs about the same from all three, per the drug labels. Most people use the belly because it is easy.
Tesamorelin	Belly only	The label says to inject into the belly. That is where it was tested.
KLOW / GLOW	Belly or thigh	Some inject near an injury, but these spread through the whole body; there is no proof “local” works better. The copper stings, so spread your spots out.
CJC-1295 + ipamorelin	Belly	At bedtime, on an empty stomach. Same shot for both.
MOTS-c	Belly or thigh	Rotate like any other shot. Some prefer the thigh to keep belly spots free for daily peptides.
Thymosin alpha-1	Belly, thigh or arm	Twice a week, so easy to rotate.
Semax, Selank	Nose (or belly if injected)	Nasal spray is how they are approved and tested.

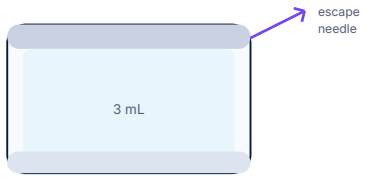
Injection safety and adverse-event guidance **standardlabs.io/compound-safety-monitoring**

Injection sites from the approved labels where they exist; otherwise common practice. Rotate to avoid lipohypertrophy.

04 · MIX & DOSE

Filling a Pen Cartridge

A peptide pen cartridge is sealed, so air needs a way out as the peptide goes in. A second needle — the escape needle — lets it escape, so pressure never builds up and cracks the cartridge.



1. Draw the mixed peptide into a syringe. Wipe the cartridge's rubber top with alcohol.
2. Push the escape needle through one side of the rubber top. Keep the tip just inside, near the top.
3. Push the syringe needle through the other side and inject slowly. Air leaves through the escape needle.
4. Stop just short of the top. Pull out the syringe first, then the escape needle. Priming the pen clears the small air gap.

Never fill from the back

Do not push the rubber plunger to the top and fill from behind. It is not clean, and you cannot see what you are contaminating.

Tip above the liquid

If liquid reaches the escape needle, it will leak out. Keep the escape tip just inside the top, above the fill line.

Fresh needles

Use a new escape needle for each fill and a new syringe needle. Both go in the sharps container.

The escape needle only lets air out. It never touches the liquid. If it does, stop, discard the cartridge, and start again with a clean one.

IF THE CARTRIDGE DOES NOT FILL

Check the escape needle

If air cannot leave, liquid cannot enter. Make sure the tip is just inside the top, not buried in the rubber.

Check the seal

A cracked cartridge or a bent needle will leak. Stop and start with a new cartridge.

Do not force it

Pressure cracks glass. If the plunger is hard to push, something is blocked.

Cartridges and pen supplies — **standardlabs.io/product/injection-pen-glass-cartridges**

A small air gap is normal; priming removes it. A cartridge that cracks or leaks is not sterile — discard it.

04 · MIX & DOSE

Warning Signs: When to Toss It

Check the vial before you mix, after you mix and before every dose. When in doubt, throw it out: a new vial costs far less than an infection.

BEFORE YOU MIX

The powder

Good: a dry white powder or a solid white “puck.” It can look shrunken or stuck to the glass and still be fine.

Toss if: yellow, brown or odd colour; wet, sticky or clumped; cracked glass or a loose cap; lot number does not match the certificate.

AFTER YOU MIX

The liquid

Good: clear like water. Exception: GHK-Cu and KLOW are blue from the copper. That is normal.

Toss if: still cloudy after 15–20 minutes in the fridge and a gentle swirl; floaters, specks, strings or sediment; colour changes; won't dissolve or turns thick.

EVERY DOSE

The vial over time

Good: still clear (or blue for KLOW), within 3–4 weeks of mixing, kept in the fridge.

Toss if: past 3–4 weeks or the bac water is past 28 days; frozen after mixing or left warm for hours; goes cloudy or gets specks; a needle or top was touched or dropped.

AFTER YOU INJECT

Your skin

Normal: a small bump, a little redness or a sting (KLOW burns more) that fades in a day or two.

See a doctor if: redness keeps spreading or gets worse after 2 days; the spot is hot, hard, very painful or oozing pus; red streaks, fever or chills.

When in doubt, throw it out. A new vial costs less than an infection. If something feels wrong after an injection, get checked by a medical professional.

Call 911: hives, swelling of the face or throat, or trouble breathing. Do not wait to see whether it settles.

IF YOU ARE UNSURE

Photograph it

The vial, the label, the powder or the liquid. A photo is easier than a description later.

Quarantine it

Label it “do not use” and keep it away from your other vials. Do not mix it to “see.”

Ask before you use it

Contact the supplier with the lot number and photos. If it is a health reaction, contact a clinician.

Not medical advice. If something feels wrong after an injection, get checked by a medical professional.

04 · MIX & DOSE

Dosing Schedules

Every peptide side by side: how often, how much, and when to take a break. Units assume the mixing chart.

Peptide	How often	Dose	Cycle and breaks
Retatrutide Trials	Once a week	Start 0.5–2 mg, step up after a month at each dose. 2–4 mg for loss; 8–12 mg with a lot to lose; 2–4 mg to maintain.	No set break. Step down to 2–4 mg rather than stopping cold; quitting often brings weight back.
Tirzepatide Drug label	Once a week	2.5 mg for 4 weeks, then up 2.5 mg every 4+ weeks if needed. Most land at 5–10 mg; 15 mg max.	No set break. Taper down rather than stopping cold.
Cagrilintide Trials	Once a week	0.25 → 0.5 → 1.0 → 1.7 → 2.4 mg, about 4 weeks per step.	No set break. Taper down rather than stopping cold.
KLOW / GLOW Community	5 days on, 2 off	4–5 mg a shot (15–19 units at 80 mg + 3 mL). One vial lasts about a month at 4 mg.	8–12 weeks on, then 4 weeks off.
Tesamorelin Drug label	Once a day	1.4 mg (label). Trials ran 6–12 months.	Check IGF-1 before going longer.
CJC-1295 + Ipamorelin Community	Bedtime, 5 on / 2 off	Start around 100 mcg of each and work up. Empty stomach, 2+ hours after eating.	8–12 weeks on, then 4–8 weeks off.
MOTS-c Community	2–3 times a week	5 mg a shot (50 units at 10 mg + 1 mL).	4–8 weeks on, then 4 weeks off.
Semax Community	Daily, mornings	Nasal: 2–6 sprays a day (200–600 mcg). Or 200–400 mcg injected.	2 weeks on, then 1–3 weeks off.
Selank Community	2–3 times a day	Nasal: 1–2 sprays per nostril (200–400 mcg). Or 250–500 mcg injected once a day.	2 weeks on, then 1–3 weeks off.
Thymosin Alpha-1 Community	Twice a week, 3–4 days apart	1.6 mg a shot (label); some start at 1 mg.	8–12 weeks on, then about 1 month off.

Trials = clinical trial doses. Drug label = approved dose in the US or abroad. Community = common practice with no trial behind it. Not medical advice.

THREE RULES FOR ANY SCHEDULE

Hold the dose

Stay at a level for at least four weeks before judging it, unless side effects tell you to stop.

Step one at a time

Do not increase two compounds in the same week. You will not know which one caused the change.

Plan the break

Write the off-weeks into the calendar before you start, not after you feel run down.

Protocol builder **standardlabs.io/protocol-builder**

Doses change when the evidence changes. Check the compound page and the current label before you rely on a number.

04 · MIX & DOSE

Stacking Safely

Taking more than one peptide is common. Doing it safely comes down to a few rules, and knowing which combos to avoid.

Start low
Begin at the bottom of each range. Two mild doses can add up to one uncomfortable one.

One new peptide at a time
Wait 2–4 weeks before adding another, so you know what causes what.

Don't double up
Never two weight-loss GLP-1s at once. Too much of the same signal doubles side effects, not results.

Feel off? Drop the newest
Stop the last thing you added first. Breaks are part of the plan, not a failure.

COMMON COMBOS

Combination	Verdict	Why
Retatrutide + tirzepatide (or any two GLP-1s)	Don't	They hit the same receptors. You double the side effects, not the results.
A GLP-1 + cagrilintide	Okay, go slow	Different fullness signals, so they add up. So does nausea: start both low.
Tesamorelin + CJC-1295	Don't	Both press the same GHRH switch. Pick one; ipamorelin pairs with either.
CJC-1295 + ipamorelin	Common pair	Different switches, one bedtime shot.
KLOW / GLOW + a weight-loss peptide	Common	Different jobs; no known overlap. Use separate syringes.
Growth hormone peptides + a GLP-1	Watch blood sugar	GH peptides can raise blood sugar. Diabetic or on diabetes meds? Check with a doctor.
Semax + caffeine or stimulants	Skip	Semax can overstimulate on its own.

New stack? Add one peptide, wait 2–4 weeks, then add the next. If you feel off, drop the newest one first.

MISSED A DOSE?

Weekly peptide
Take it when you remember if it is within a day or two; otherwise skip and resume the schedule. Do not double up.

Daily peptide
Skip the missed dose and take the next one at the usual time. Do not take two doses at once.

Nasal peptide
Resume at the next scheduled spray. More sprays do not make up for a missed one.

Combining compounds reference **standardlabs.io/combining-compounds-reference**

Combos are common practice; almost none have been tested together. Not medical advice.

05 · STORE IT

Storage & Organization

Choose an organizer that fits your vial inventory and laboratory setup.



Peptide Vial Case · 10 Slot

CAD $20.00

Individual compartments for up to ten standard 3 mL vials, up to 17 mm in diameter. Case only; vials are not included.

View product at standardlabs.io →



Compact Four-Slot Case

CAD $12.00

A smaller option for a compact inventory. Follow material-specific storage instructions separately.

View product at standardlabs.io →

> Cases organize and protect against contact. They do not actively refrigerate contents or validate a cold chain. Maintain the required temperature, light protection and handling conditions.

Prices in CAD, checked October 31, 2026. Options and availability may change; confirm the selected product, tax and shipping online.

05 · STORE IT

Freezer & Fridge Setup

Keep your stock cold, dark and dry. Here is the routine that keeps unmixed peptides good long-term.

THE TRANSFER ROUTINE

Freezer

Stock 1 and Stock 2. Open both jars inside the freezer and move only what you need into the transfer jar.

carry the jar →

never take the stock jars out

Fridge

Transfer jar and in-use vial. Unmixed vials are fine here for weeks to a few months.

Long-term: freezer

Best: a dedicated stand-alone freezer. It is opened less, so temperatures stay steadier.

Okay: a regular kitchen freezer. Keep the containers at the back, away from the door. Stored this way, unmixed peptides stay stable for several years.

In use: fridge

Start with three jars: two stay in the freezer, one is the transfer jar for the fridge.

Transfer inside the freezer. Then move the transfer jar to the fridge. Keep it out of light.

Freeze once. Repeated freezing and thawing damages peptides. Once they go in the freezer, leave them there and move only what you need to the fridge jar. Never freeze peptides after bac water is added, and never freeze bac water.

CONDENSATION IS THE QUIET PROBLEM

Let the jar equalise

Open it after it has sat out for a few minutes, not straight from the freezer.

Keep a desiccant

A small silica pack inside the jar absorbs moisture that sneaks in.

Bag the vials

A sealed bag adds a second barrier and keeps labels legible.

THAWING RULES

Move, do not thaw

Move the vial to the fridge jar and let it equalise there. Do not use a microwave, hot water or a radiator.

Do not refreeze

Once a vial has warmed, it stays in the fridge. A second freeze–thaw cycle is the one that damages it.

Wipe the outside

Condensation on the vial is not sterile. Let it dry, then wipe the stopper before the needle.

Freeze once. Repeated freeze–thaw cycles damage peptides. Never freeze a mixed vial or bac water.

06 · TOOLS & RESOURCES

Standard Labs Tools

Use our resources to calculate, organize and track your reference information.

Reconstitution Calculator

Enter compound amount, solution volume and target amount. Keep units consistent and check the inputs.

Open at standardlabs.io →

Protocol Builder

Organize your research reference information in one place.

Open at standardlabs.io →

Protocol Tracker

Keep dates, amounts, mix details and relevant records together.

Open at standardlabs.io →

Shop the Canadian catalogue

View at standardlabs.io →

REFERENCE

Glossary

Plain-language definitions for the terms that matter in this guide.

Peptide — A short chain of amino acids, usually fewer than 50.

Amino acid — The building block of a peptide or protein.

Lyophilised — Freeze-dried: water is removed under vacuum, leaving a powder or cake.

Cake / puck — The solid plug of lyophilised peptide at the bottom of a vial.

Reconstitution — Adding a liquid to a dry peptide so it dissolves into solution.

Diluent — The liquid used to reconstitute a peptide. Bacteriostatic water is common; it is not universal.

Bacteriostatic water — Sterile water with benzyl alcohol, which slows bacterial growth.

Concentration — Mass of peptide per volume of solution, usually mg/mL.

mg / mcg — Milligram (1/1,000 g) and microgram (1/1,000 mg).

mL — Millilitre; 1 mL = 1,000 microlitres.

U-100 — A syringe scale where 100 units = 1 mL.

Subcutaneous — Just under the skin, into the fat layer.

Gauge (G) — Needle thickness. Higher number = thinner needle.

Dead volume — Liquid left in the hub or needle that cannot be injected.

COA — Certificate of analysis: the batch record of identity, purity and testing.

HPLC — High-performance liquid chromatography; separates and measures components.

Mass spectrometry — A method that identifies a molecule by its mass.

Purity — The percentage of the main peak in a sample; not the same as identity.

Identity — Whether the material is the compound it claims to be.

Endotoxin — A bacterial cell-wall fragment that can cause fever and inflammation.

Sterility — The absence of viable microorganisms.

Aggregation — Peptide molecules clumping together, often after shaking or heating.

Adsorption — Peptide sticking to the surface of glass or plastic.

Half-life — How long it takes for half the drug to leave the body.

Agonist — A molecule that activates a receptor.

Titration — Stepping the dose up or down gradually.

Beyond-use date — The date after which a prepared solution should not be used.

Excipient — An inactive ingredient in a formulation.

Definitions are written for this guide. They are not regulatory definitions and do not replace the product label or your institution's SOP.

REFERENCE

References & Resources

The primary sources behind the trial and label claims in this guide, plus where to go next on standardlabs.io.

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WHERE TO GO NEXT

Compound library
standardlabs.io/compound-library

Peptide calculator
standardlabs.io/peptide-calculator

Protocol builder
standardlabs.io/protocol-builder

Citations are provided for attribution and verification. External links are intentionally omitted; all clickable links in this guide resolve to standardlabs.io. Regulatory status is current as of October 2026 and may change.

STANDARD
RESEARCH LAB

STANDARD LABS · RESEARCH PEPTIDES

Read the evidence. Check the math. Write it down.

A practical reference for research peptides: what the trials show, how to handle a vial, how to measure a dose, and how to store what you have.

START HERE
standardlabs.io/shop-now/

CHECK YOUR MATH
standardlabs.io/peptide-calculator